z/OS 1.12 User Experience

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SCE Configuration

- **Two data centers about 100 KM apart**
  - One in LA County, one in Orange County
  - One is primarily for Disaster Recovery for the other
- **Four full function parallel sysplexes**
  - Two **z10s** and one **z9**
  - Sysprog sandbox (two members)
  - Development sysplex subject to SLA (three members)
  - Development sysplex was the <u>agreed target</u> for the ESP
  - Other sysplexes are client oriented production systems
- **Also one basic sysplex for XRC/SDM/GDPS (DR)**

Migration Ambition

- **All images were running on R11**
- **z/OS upgrade to R12 on all images**
- **We do not run multiple levels for long periods**
  - **We lose migration path for down-level releases**
  - **We install and migrate with all deliberate speed**
- **There are tools to help manage multiple levels**
  - **Use ASAP in Service Link**
  - **Run FIXCAT against each release's CSI**
  - **Order maintenance by APAR, not PTF**
  - **Submit the same order list for each level**

Migration Aids

- **Several Health Checks have been released**
- **Install via PTF and run on previous level(s)**
- **Named ZOSMIGV* for z/OS release**
  - **ZOSMIGV1R11_CS_DNSBIND9**
  - **ZOSMIGV1R11_CS_RFC4301**
  - **ZOSMIGV1R12_RCF_PCCA_ABOVE_16M**
  - **ZOSMIGV1R12_SUP_LCCA_ABOVE_16M**
- **Remember to activate checks via either…**
  - **UPDATE action**
  - **SDSF CK function**
- **Watch out for 'EXCEPTION-LOW'**

More Migration Aids

- **FIXCAT reports using enhanced hold data**
  - **Means 'fix category'**

- **IBM.TargetSystem-RequiredService.z/OS.V1R12**

- **Identified APARs/PTFs should be installed on all down level systems in advance of first R12 installation**

- **If pulling enhanced hold data from service.boulder.ibm.com via FTP then…**

- **…you must request full.txt to get FIXCAT data**

ESP Migration Time Line

- **05/10/2010 SCE orders ServerPac**
- **06/22/2010 IBM ships order electronically**
- **06/23/2010 SCE downloads order to PC**
- **06/23/2010 SCE begins ServerPac install**
- **06/25/2010 Most of 80+ usermods are installed**
- **06/29/2010 IPL on first sandbox sysplex member**
  - **Included all 'environmental' tailoring and config**
- **06/29/2010 IPL on remaining sandbox system**
- **11/28/2010 'Sticky' IPL on development sysplex**
- **02/13/2011 IPL on Data Warehouse system**

Notes on ServerPac

- **Download size was nearly double that for R9**
  - 11.3 GB vs. 6.8 GB
  - Most of the difference was probably WASOEM for z/OSMF
- **All DASD Shark virtual allocations**
  - Single Mod-9 sysres migratable via volume dump/restore
  - System zFS migratable via logical dump/restore
  - Non-migrating Mod-9/Mod-27 for SMPE CAT/DLB volumes
- **USS file system space**
  - Multi-volume zFS simplifies migration
  - Use preallocated object for DFDSS RESTORE
  - Capacity not tied to specific volume layout

More Notes on ServerPac

- ## We always use the Full-System Replace option

- ## Easiest ServerPac to date

- ## Sizing of libraries better than ever

  - ### Less need to adjust space or directories

  - ### Still, maintenance down the road takes its toll

  - ### Be prepared to increase allocations over time

- ## Consider giving LINKLIST libs secondary allocations

  - ### Fixing out-of-space condition during APPLY is laborious

  - ### Health Checker complains, but YOU run maintenance!

SCE **ServerPac** Strategy

- **We never IPL vanilla ServerPac**
  - **Would only validate IBM packaging**
  - **Lots of work for a throw-away system**
- **We never use ServerPac 'data components'**
  - **Master Catalog**
  - **Spool**
  - **RACF data base**
- **Our SYS1.PARMLIB lives away from sysres**
  - **Concatenated ahead of IBM's sysres PARMLIBs**
- **Our <u>first</u> IPL is fully customized!**

SCE Customizing with USERMODs

- **We have more than 80 USERMODs installed via SMP/E**
- **Exits, option modules, ISPF panels, etc.**
- **Most of them reinstalled with only MCS updates**
  - **FMID and req/prereq changes**
  - **REWORK() date set current for doc purposes**
- **Some changes were required for R11 → R12**
  - **User exit CBRHADUX for OSMC in OAM (new sample)**
  - **New JES2 Exit 7 required for TWS (PM06579)**
- **Note: migrating from N-(1+) release requires care**
- **E.g. there were some serious JES2 changes in R11**

ISV Adventures

- ## Several products needed maintenance for R12
  - ### Some routine, some emerging surprises
    1. Ask each ISV for required fixes or level
    2. Install required fixes/level and test
    3. Loop until no problems found
- ## Some of the 'ISV' (non-ServerPac) products we run
  - 'HSC' and pals for both silos and virtual tape
  - Control-D, Control-V
  - CA11, ISPW, JHS, MXG, Connect Direct (NDM)
  - StarTool, VPS, TPX
  - Tivoli Work Load Scheduler (TWS), OMEGAMON suite
  - CA Vision:Results (DYL280), QuickStart
- ## No show stoppers but some show freezers ;-(

ISV Adventures

- **ESP customers need ducks in a row by GA - 90 days**
- **A few vendor products were not ready for ESP**
- **One product was IBM's own!**
  - We had to wait some time for an updated system exit
  - We never got an explanation for the delay
- **Another was a hot-potato media management product**
  - This one was especially troubling
  - "We will be ready for new z/OS by GA + 90 days"
  - Reflects what we consider a 'non-mainframe mindset'
  - Vendor did not initially have access to an R12 system
  - To their credit, vendor got cracking and beat GA after all

Soaring Control Blocks

- **LCCA and PCCA have always resided 'below the line'**
- **In R12, these CBs go above the line <u>by default</u>**
- **They can be forced back below the line**
  - **SYS1.PARMLIB member DIAGxx or SET DIAG command**
  - **Keyword CBLOC with values of 24 or 31**
- **Readiness Health Checks warn if CBs below the line**
- **Most current products can handle CBLOC 31**
- **Watch out for very old releases benignly neglected**
- **To be safe, try CBLOC 31 in pre-R12 environment**
- **Failures circumvented by reverting to CBLOC 24**
- **Problems may surprise you later in migration path**

Enabling SYSSTATDETECT

- Create and migrate to new XCF Couple data sets
- Add one line to your existing definition with PGM=IXCL1DSU :
- ...
- ITEM NAME(SSTATDET) NUMBER(1)
- ...
- Issue this console command and look for response:
- SETXCF FUNCTIONS,ENABLE=SYSSTATDETECT
- 07.59.21 B0   IXC373I XCF / XES OPTIONAL FUNCTIONS ENABLED:
-      SYSSTATDETECT
- 07.59.21 B0   IXC104I SYSTEM STATUS DETECTION PARTITIONING
- PROTOCOL ELIGIBILITY:
- SYSTEM CAN TARGET OTHER SYSTEMS.
- SYSTEM IS ELIGIBLE TO BE TARGETED BY OTHER SYSTEMS.

System Status Detect

```
D XCF,C

SYSTEM STATUS DETECTION PARTITIONING PROTOCOL ELIGIBILITY:
SYSTEM CAN TARGET OTHER SYSTEMS.
SYSTEM IS ELIGIBLE TO BE TARGETED BY OTHER SYSTEMS.

NETWORK ADDRESS: network-name.cec-name

PARTITION IMAGE NAME: lpar-name

IPL TOKEN: C5929FBD 00190701

OPTIONAL FUNCTION STATUS:
FUNCTION NAME                         STATUS      DEFAULT
SYSSTATDETECT                         ENABLED     ENABLED
```

When SysStatDet Dropped the Hammer

A recent instance of sysplex sympathy sickness

```
08:49:30.44 IXC446I SYSTEM B1 IS IN MONITOR-DETECTED
   STOP STATUS BUT IS SENDING XCF SIGNALS. SFM WILL
   TAKE SSUM ACTION AT 03/02/2010 08:50:30 IF SYSTEM
   REMAINS IN THIS STATE.


08:50:36.54 IXC101I SYSPLEX PARTITIONING IN PROGRESS
   FOR B1 REQUESTED BY XCFAS. REASON: SFM STARTED DUE
   TO STATUS UPDATE MISSING


08:50:36.55 IXC108I SYSPLEX PARTITIONING INITIATING
   FENCE


08:50:39.68 IXC109I FENCE OF SYSTEM B1 SUCCESSFUL.
```

Automatic SAD and Re-IPL

- **Statement in DIAGxx in PARMLIB**

- `AUTOIPL SADMP(uuuu,SMSYSC) MVS(LAST)`

- **In case of system failure, first IPL SAD from uuuu**
- **Then re-IPL the system using the last sysres volume**
- **In the case of SysStatDetect partitioning above**
  - **We got a standalone dump**
  - **System 'IPLed itself'**
- **Took us a while to figure out why everyone denied doing it!**

zAAP on zIIP

- We have only zIIP engines, no zAAP
- Could not find enough zAAP workload to justify its own engine
- In R11+, zAAP eligible workload will run on a zIIP if no zAAP is installed
- WASOEM included for z/OSMF does have a zAAP eligible component
- We have observed increased zIIP usage with WASOEM running

PARMLIB Coexistence Issues

- **Old, chronic problem with mixed releases**
- **New keywords may not be recognized by lower level(s)**
- **Especially true during IPL with IEASYSxx**
- **Sometimes new keywords are simply ignored**
  - **Maybe a complaint, system still comes up OK**
- **Sometimes unrecognized keyword stops IPL**
- **Or worse: system comes up wrong, e.g. SMS**
  - **Unrecognized parameter results in 'default config': yikes!**
- **A problem for migration, sharing, and fallback**

PARMLIB Coexistence Issues

- **Major issue in R12 is ICSF**
- **PGM= changes to CSFINIT (from CSFMMAIN)**
- **R12 and pre-R12 cannot use the same PROC**
- **Our SYS1.PROCLIB is shared across sysplex**
- **Solution: move ICSF to SYS1.IBM.PROCLIB**
  - **This library lives on the sysres volume**
  - **Shared only by members IPLed at the same level**
- **REMOVE ICSF from shared PROCLIB**
- **Do this on all systems before you forget!**

Late Breaking Problem with SFTP

- **We use SFTP/SSH (IBM Ported Tools) <u>a lot</u>**
- **R12 ServerPac ships SSH 1.2 OpenSSH_5.0p1**
- **We just discovered a problem with large files**
  - **"FOTS2050 xrealloc: out of memory" in batch jobs**
  - **Means insufficient LE heap memory on z/OS**
  - **Same jobs worked fine under R11 and prior**
  - **Problem showed up in the <u>third</u> environment to get R12!**
- **DOC APAR OA34819 against SA23-2246-xx**
  - **"IBM Ported Tools for z/OS: OpenSSH User's Guide"**
  - **Various workaround actions suggested**

SFTP/SSH Heap Problem

- **Error tied to file size**
- **First reported problem involved 160+ MB file**
  - **Small files transferred with no problem**
- **Our reported problems are all batch jobs**
  - **OTOH our FTP/SFTP from mainframe is mostly (all?) batch**
- **Tried setting variables with STDENV DD card**
- **Jobs still failed as before**
- **Failing jobs typically use smallish region like 8 MB**
- **Only relief is to increase region size to, say, 64 MB**
  - **Must code on both JOB card and STEP cards**
- **No PER APAR in the offing as of today**

CSP Stumbles, Limps Along

- **Cross System Product**
- **Eons out of support**
- **Still worked without intervention up to R7**
- **'Compile' stage failed in R8 with new LE**
- **Workaround: use a copy of R7 SCEERUN**
- **It still works in R12 with R7 copy**

- **Anyone interested in a therapy group?**

Questions?